Mayville State University

Math 420 History and Philosophy of Mathematics Syllabus

(**Online 27554**) Fall 2025
3 Credit Hours

Course and Instructor Information

Instructor Name: Mary Townsend

Contact Information:

Office: Classroom Building 108A
Email: mary.townsend@mayvillestate.edu
Work phone: 701-788-4672

Hours of Availability:

Monday, Wednesday: noon to 12:50 p.m. on campus

Also available for meetings on other days (including weekends) and times by appointment.

Office Hours Meeting Link: https://mayvillestate.zoom.us/j/89626410446

Instructional Mode: Online asynchronous
Course Dates: August 25 – December 19. 2025

Time Zone: All times indicated throughout this syllabus reflect Central Time (CT).

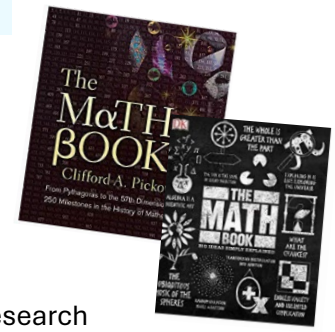
Meeting Times and/or Location: By appointment by zoom

Final Exam Time and Location: There is no final exam in this course.

Zoom or Teams Link: https://mayvillestate.zoom.us/j/83376754490

Course Materials and Technologies

Required Textbooks:



- *The Math Book: From Pythagoras to the 57th Dimension, 250 Milestones in the History of Mathematics* by Clifford A. Pickover (2009).
- *The Math Book: Big Ideas Simply Explained* by Toucan Books in Great Britain by Darling Kindersley Limited (2019).

Additional required articles will be posted in Blackboard for this course. You will also do research with books, online articles, and other sources depending on the topics selected for mini-presentations and the final project.

Instructional Technologies:

- Access to a stable internet connection and the ability to create and view presentations with audio.
- You may use YuJa videos, PowerPoint, YouTube and/or other presentation software to submit their presentations. The presentations need to have text with citations supporting the facts that are narrated with audio.
- You may conference with Professor Mary Townsend by phone, Zoom, email or Teams.
- Blackboard Ultra is MSU's learning management system and virtual class environment.
- Graphing calculators and computer software including Wolfram Alpha provide ways for you to utilize technology to understand, solve, and graph solutions.

Math 420 History and Philosophy of Mathematics Syllabus

Required Online Software: We will also use myOpenMath software created by OpenStax with the free enrollment key and course ID available in Blackboard to explore some of the mathematical concepts.

Required Technology: Students will need a laptop and a graphing or scientific calculator.

Technologies available to students include a graphing and/or scientific calculator, online software including:

- https://www.khanacademy.org/
- https://www.mathsisfun.com/
- https://www.myopenmath.com/
- https://www.purplemath.com/
- https://www.wolframalpha.com/
- https://www.desmos.com/calculator
- https://www.geogebra.org/graphing?lang=en
- https://www.numworks.com/simulator/

Required

MSU Technology Requirements

Use of Artificial Intelligence in this Course

AI tools may be used in this course if their purpose is to support your learning. The goal is always your own understanding, not just getting an answer. If you choose to use AI, treat its output as a starting point or building block—not a final product. Always aim to understand, question, and build upon what AI provides so that your own mathematical thinking and teaching skills continue to grow.

Students will be encouraged to use AI to find scholarly articles related to various topics we are studying in this course. Students will have an opportunity to generate AI summaries of articles and compare summaries generated with the actual content of the articles.

Course Description

This course covers the history of mathematics developed from a conceptual as well as a chronological point of view. Students will study mathematics as both a science and an art; they will explore perspectives of different philosophies of math. Students will demonstrate writing proficiency and presentation skills using computer presentation software and/or video that utilizes both text and internet research.

Pre-/Co-requisites: Math 103 College Algebra (or a higher mathematics course such as Calculus I)

Course Objectives

To successfully complete this course, the learner will be expected to meet the following objectives, as aligned to Mathematics Education Program Approval Standards through North Dakota's Education Standards and Practices Board (ND ESPB):

- 11010.2 Mathematical Connections: The program requires the teacher candidate to demonstrate the interconnectedness of mathematical ideas and how they build on one another. The candidate recognizes and applies connections among mathematical ideas and across various content areas as well as real-world contexts, using the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences

- 11010.5 Historical Perspective: The program requires the teacher candidate to demonstrate knowledge of the historical development and perspective of mathematics including contributions of significant figures and diverse cultures

Students in this course will:

- Examine the historical milestones, branches, philosophies, and significant concepts in mathematics by reading the text and additional sources, completing short quizzes, writing journal entries, and participating in discussion forums with their peers.
- Demonstrate oral and written presentation skills by designing and presenting at least three 5- to 15-minute mini-presentations about mathematicians, mathematical concepts, branches of mathematics, and/or philosophies of mathematics and a final presentation on a mathematician.
- Compose a final project research paper on a mathematician and their background, mathematical contributions, and connections to others, by completing five Final Project Checkpoints (FPCPs) and using APA format.
- Evaluate the papers, presentations, and discussions of former students of this course.

Course Expectations

Students are expected to display academic honesty and respect for themselves, their classmates, their instructor, and the Mathematics department. For each mini-presentation, students will evaluate themselves and at least 2 peers by providing constructive comments and ideas to improve future presentations and papers. You will complete activities by the due dates and provide meaningful feedback to one another. Students are expected to write using complete sentences in paragraph form as they evaluate one another and contribute opinions and experiences in discussion forums.

Students are responsible to:

- Read text, watch PowerPoint presentations and/or videos.
- Complete graded assignments including final project checkpoints (FPCPs), quizzes, journals, and presentations by designated due dates.
- Ask questions and participate in online discussions via Discussion Boards.
- Evaluate submissions by peers and learn from one another.

Instructor/Student Communication

Students are accountable for all academic communications sent to their Mayville State University email address. Students are encouraged to communicate by e-mail when they submit work early and/or request an extension on a deadline.

Students may e-mail questions regarding specific problems or a request for help by zoom or in person. E-mails will typically be answered within 24 hours. If no answer was given, please forward the original e-mail with a reminder after 24 hours.

Journals, quizzes, and discussion board posts will typically be graded within 48 hours. Students are encouraged to double-check the Blackboard gradebook to ensure scores are entered correctly.

Professor Townsend will submit Kudos (messages of praise and honor) in Starfish (Mayville State's early alert system) when students perform well on final project checkpoints, quizzes, journals, and homework AND when students are showing improvement. When students perform poorly or miss deadlines, a Starfish flag will be raised by Professor Townsend. When students get a message in Starfish, a copy is also sent to the student's advisor, coach, the student success center coordinator, and other instructors that semester.

Math 420 History and Philosophy of Mathematics Syllabus

Graded Assignments and Assessments

The assignments and assessments in this course may include graded homework in myOpenMath as well as quizzes, journals, discussion boards in Blackboard. See a breakdown of the weighted grade these activities have in the next section.

Evaluation and Grading

Students will be evaluated based on total points earned. Grading will be based on assignments including mini-presentations (30 points each) and evaluations of mini-presentations of former students (10 points each), online Blackboard quizzes (10 points each), online reflection journals (10 points each), final project checkpoints (FPCPs) with FPCP 1 = 20 points, FPCP 2 = 30 points, FPCP 3 = FPCP 4 = FPCP 5 = 50 points for a total of 200 points. The final presentation is worth 200 points and the final paper is also worth 200 points.

Grading Scale

A: 900 or more points B: 800 – 899 points C: 700 – 799 point D: 600 – 699 points F: < 600 points

Breakdown of Grades

Activity	No. of Occurrences	Points Possible	Suggested Percent of Total Grade
Mini-Presentations	varies	30 (× 5)	15%
Evaluations	varies	10 (× 10)	10%
Quizzes	varies	10 (× 10)	10%
Discussion Posts/Journals	varies	10 (× 20)	20%
Final Project Check Points (FPCPs)	5	250	25%
Final Paper	1	100	10%
Final Presentation	1	100	10%
Total Points Possible		varies	

Enrollment Verification

The enrollment verification activity for Math 420 is to complete the syllabus quiz, 6 Critical Questions Journal, and Introduction Discussion Board in Blackboard. These three activities are due on Friday, 8/29 by noon. Students who attend class during the first week of the semester have fulfilled their enrollment verification, and they still need to complete the enrollment verification activities.

Grading Policies

Students are required to complete a final project in this course. Since there are 400 points for the final project, and 200 points for final project checkpoints, it is advisable to prioritize work on the final project. Some students prefer to do presentations, and it is permissible to do more than 10 mini-presentations and earn 300 or more points on mini-presentations.

Students are not required to do all the quizzes, journals, or discussion posts. There are over 1000 points in the course, and additional activities may become available as students research various topics. For example, if a student's final project is Euclid, the student may request additional questions to be provided in myOpenMath to explore geometry, theory of numbers or other topics. If the final project is Newton, students may request additional questions in myOpenMath to explore Newton's method or calculus topics.

Attendance/Participation Policies

Please communicate by e-mail to Professor Townsend at mary.townsend@mayvillestate.edu if you will be absent or unable to complete work due to an illness or other reason. If you know in advance that you will be absent such as for a scheduled surgery or athletic event, please make arrangements to complete homework prior to the due date. In the event of an emergency (such as a death in the family, an accident, or illness), accommodations can be made to extend a deadline.

Enrollment Verification

The enrollment verification activity for Math 420 is to complete the syllabus quiz, 6 Critical Questions Journal, and Introduction Discussion Board in Blackboard. These three activities are due on Friday, 8/29/2025 by noon.

Online Course Statement

The U.S. Department of Education requires instructors of online courses to provide an activity which will validate student enrollment in this course. The only way to verify that a student has been in this course is if he, she, or they perform an action in the LMS, such as completing an assignment or taking a quiz. Logging into the LMS is **NOT** considered active course participation. Please complete the designated enrollment verification activity by the date indicated. If it is not complete your enrollment in this course will be at risk.

Proctor Notification

A proctor is not required for this course since there are no proctored exams.

Important Student Information

In the Help & Resources for Students section of the Blackboard Institution Page, you can view and download the Important Student Information document for the current academic year. It includes information about:

- ✓ Land Acknowledgement Statement
- ✓ Academic Grievance Concerns and Instructor English Proficiency
- ✓ NetTutor - Online Tutoring Program
- ✓ Starfish - Student Success System
- ✓ Students with Documented Disabilities
- ✓ Student Learning Outcomes / Essential Learning Outcomes
- ✓ Academic Honesty
- ✓ Emergency Notification
- ✓ Continuity of Academic Instruction for a Pandemic or Emergency
- ✓ Family Educational Rights and Privacy Act of 1974 (FERPA)
- ✓ Diversity Statement (Title IX)

Math 420 History and Philosophy of Mathematics Syllabus

Course Timeline/Schedule

The important dates to remember:

1. **Enrollment verification activities** (6 Critical Questions journal, introduction discussion board, and syllabus quiz) are due on Friday of week 1 on 8/29 before noon.
2. **There will be five final project checkpoints (FPCPs)** to gauge the progress of the final project and obtain feedback from peers and the instructor.
    - FPCP 1 (an annotated bibliography with facts from sources) is due on or before 9/15. Students are expected to include images in this paper that will be used for future presentations.
    - FPCP 2 (the historical background OR mathematical contributions section of the final project) is due on or before 9/22. Students need to submit both a paper and a presentation (no audio is expected, but it is advantageous for the student to submit in the notes section of each slide what they intend to use for narration).
    - FPCP 3 (the historical background AND mathematical contributions sections of the final project) is due on or before 10/6. Students need to submit both a paper and a presentation (no audio is expected). Students are expected to make revisions to their FPCP 2 submission.
    - FPCP 4 (the historical background, mathematical contributions, AND connections sections of the final project) is due on or before 10/27. Students need to submit both a paper and a presentation (no audio is expected). Students are expected to make revisions to their FPCP 3 submission.
    - FPCP 5 (the rough draft of the paper and presentation should include all of FPCP 4 with revisions, an introduction, a conclusion, transitions between sections, and add audio to the presentation) is due on or before 11/10. Writing Center feedback should also be submitted along with the changes the student made after receiving feedback.
3. **Quizzes, journals, mini-presentations, and discussion board posts** on readings and research topics are typically due on Mondays and Wednesdays to provide opportunities for students to practice writing and presenting information.
4. **The final project** includes both a presentation with audio and a paper on a famous mathematician. The final draft is due on 11/24.

The Course Timeline and Schedule are subject to change as deemed necessary by the instructor.

A more detailed schedule is found in the Blackboard course shell in the Syllabus, myOpenMath Registration, and Schedule folder near the top of the Content section.

References/Bibliography

Dangerfield, J., Davis, H., Farndon, J., Griffiths, J., Jackson, T., Patel, M., Pope, S., & Parker, M. (2019). *The math book: Big ideas simply explained*. Dk Publishing.

Pickover, C. A. (2011). *The math book: From Pythagoras to the 57th dimension, 250 milestones in the history of Mathematics*. Union Square & Co.